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PLANT PROTECTION BULLETIN

A PUBLICATION OF THE WORLD REPORTING SERVICE ON PLANT DISEASES AND PESTS

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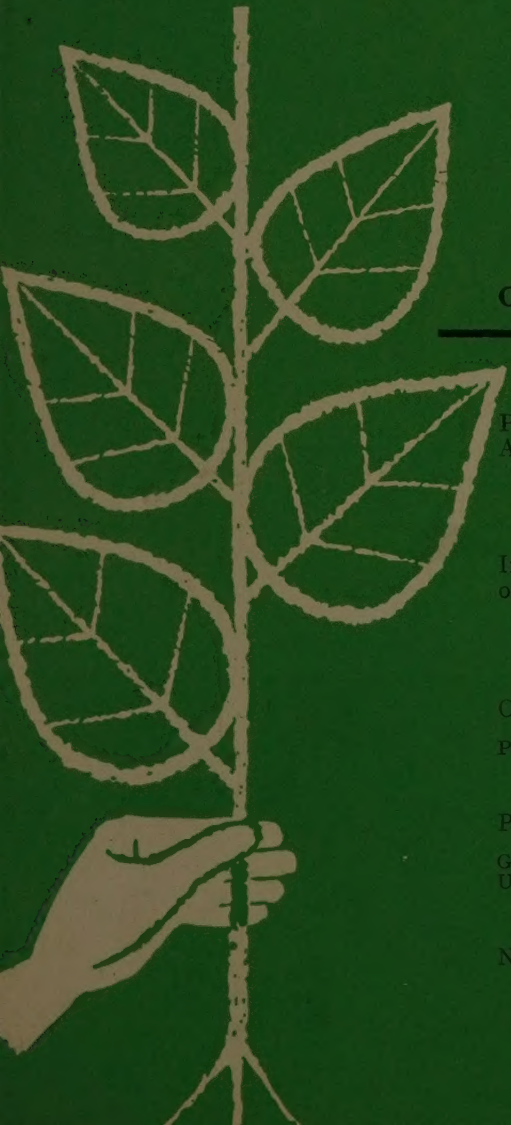

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FAO PLANT PROTECTION BULLETIN

is issued as a medium for the dissemination of information received by the World Reporting Service on Plant Diseases and Pests, established in accordance with the provisions of the International Plant Protection Convention, 1951. It publishes reports on the occurrence, outbreak and control of pests and diseases of plants and plant products of economic significance and related topics, with special reference to current information. No responsibility is assumed by FAO for opinions and viewpoints expressed in the Bulletin.

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FAO PLANT PROTECTION BULLETIN

A PUBLICATION OF THE WORLD REPORTING SERVICE ON PLANT DISEASES AND PESTS

Plant Diseases in the Province of Mendoza, Argentina

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The Province of Mendoza is situated along the western border of Argentina. About one third of its surface of approximately 151,000 square kilometers is covered by the Andes and its foothills. The rest is a plain sloping gradually downward and eastward to an altitude of 450 meters and comprising extensive areas of good agricultural land.

Soils, predominantly of alluvial origin, are in general good for cultivation but some factors unfavorable to plant growth often occur, such as the excess of soluble salts and boron, the low content of organic matter and total nitrogen, alkalinity and the presence of compact and impermeable layers in the profile.

Climate of the province is characterized by dryness, with mean temperatures ranging from 11.4° to 16.7° C. Annual rainfall is around 200 millimeters, with a predominance of summer rains except in the southwest. A high number of sunny days and a sparse cloudiness keep relative air humidity low, varying between 49 and 65 percent in average. Winds are usually of moderate strength. The main adverse climatic factors are frosts, especially late frosts, and hail. As a consequence of low rainfall, crop cultivation is possible only under irrigation. With an extensive and very ancient system, a total of 374,000 hectares are now irrigated, mostly with surface water but some 50,000 hectares depend on underground water.

The most important and characteristic crop is that of grapes, which occupy about 160,000 hectares. Most of the grapevines are of French, Spanish or Italian origin. Malbeck is the most widely employed variety, as it is grown on nearly 50,000 hectares. Other commonly grown varieties are Verdot, Barbera d'Asti, Pedro Giménez, Semillón, Pinot blanco, Criolla grande, Cereza and Moscatel rosada.

Vegetable production comes second in importance, and to it about 23,000 hectares are devoted. The vegetables grown most extensively are tomatoes, capsicum peppers and green peas.

Fruit culture occupies third place in agricultural production of the province. Peaches and apples are the main fruit crops and, in addition, almonds, cherries and mazard cherries, apricots, walnuts, pears and quince are grown on a large scale.

In a recent review of plant diseases in Mendoza, the writers found that 205 diseases caused by bacteria, fungi, viruses or phanerogams had been reported on 104 different cultivated host plants. This list, which is far from being complete, shows that there are relatively few diseases of economic importance and that some of them cause serious losses only sporadically.

In general, the dry climate of Mendoza is unfavorable to the development of cryptogamic diseases. Out of 155 fungus diseases identified, 31 are powdery mildews, 38 are rusts and 22 belong to the root rot group, whereas leaf-attacking fungi are less numerous because of their higher moisture requirement.

Diseases of grapes

The grape industry is under constant threat of severe disease outbreaks and, as favorable conditions for disease development occur only sporadically, the farmers do not pay adequate attention to initial attacks and often react too late. The lack of knowledge and equipment aggravates the situation.

Downy mildew (*Plasmopara viticola*) characterizes best this situation. This disease was first reported in 1919 and, since then, it has become well established, occurring every year rather late in the season. It caused severe losses in the summers of 1919-20, 1920-21, 1930-31, 1943-44 and 1956-57. The last outbreak reduced grape production of the province by more than 50 percent. The magnitude of the losses should justify the organization of a warning system.

Although powdery mildew (*Oidium tuckeri*) does not cause such spectacular losses as downy mildew, it occurs every year with an almost equal intensity and requires permanent and well-organized control efforts.

Minor fungus diseases which occasionally cause some damage are grape anthracnose (*Sphaceloma ampelinum*), especially in the east of the province, and gray mold (*Botrytis cinerea*).

The only bacterial disease of the grapevine reported in the province is crown gall (*Agrobacterium tumefaciens*). There are not sufficient data available to ascertain the distribution and economic importance of the disease but the writers have on several occasions found serious infections in vineyards. In this connection it is of interest to mention that bacterial blight of grapes (*Erwinia vitivora*) is not known to exist in Mendoza.

Investigation of virus diseases was initiated only recently. Infectious degeneration has been found mostly on *Phylloxera*-resistant rootstocks. It is feared that it will spread widely to the European vines on which, until now, it has been found only in a few cases. The occurrence of Pierce's disease of virus origin has also been mentioned but it has not yet been definitely identified.

Diseases of fruit trees

Shot hole caused by *Coryneum carpophilum* is the most important disease of stone fruits, causing serious losses in certain years, especially to peaches. Other diseases affecting stone fruit in Mendoza are crown gall (*Agrobacterium tumefaciens*) and peach rust (*Tranzschelia pruni-spinosae*). In addition, powdery mildew (*Oidium leucoconium*) and leaf curl (*Taphrina deformans*) occur on peaches and bacterial spot (*Xanthomonas pruni*) on prunes. Except for shot hole and occasionally for powdery mildew, control measures have not been taken for controlling these diseases because of their insignificant effects on yield.

Powdery mildew (*Oidium farinosum*) can cause serious damage in apple orchards and thus requires adequate control. This disease is practically nonexistent on pear trees.

Other apple diseases are canker, caused by *Coniothecium chomatosporum* and *Cytospora* sp., and root rot, caused by *Pythium oligandrum*. These diseases are not serious, except root rot, which sometimes kills nursery plants.

Pear and apple scab, caused by *Fusicladium pirinum* and *F. dendriticum*, respectively, inflict considerable losses in other regions of the country but practically do not exist in Mendoza. They were reported in 1931 and 1932 from the south of the province as causing insignificant damage.

Fire blight (*Erwinia amylovora*), although its possible occurrence had several times caused alarm, does not exist in Mendoza nor has it been recorded in Argentina.

Recently the writers ascertained the presence of collar rot on apple of the Cox's Orange Pippin variety. In a block of approximately 30 hectares most of the trees belonging to this variety were affected and numerous trees were killed. Isolations and pathogenicity tests revealed *Phytophthora cactorum* as the causal agent. The Cox's Orange Pippin variety is not widely grown in Mendoza, but the presence of similar disease symptoms, although less widespread and less marked, on trees of the Red Delicious, King David, Black Jonathan, Huidobro and Rome Beauty varieties indicates that the disease might become serious.

Walnuts are affected by two serious diseases, root rot, caused by *Phytophthora citrophthora*, and walnut blight, caused by *Xanthomonas juglandis*. Blight was not known until six years ago and has since become serious, causing considerable losses during the last years.

The most widespread olive disease is the olive knot, caused by *Pseudomonas savastanoi*, which in some groves seriously affects olive production. Recently, light infection of blotch (*Cycloconium oleaginum*) has been observed.

Virus diseases affecting fruit trees have not yet been studied. The few diseases which have been reported as being caused by viruses, were identified on the basis of symptoms only. These include peach mosaic, little peach, fig mosaic and olive partial paralysis. It is probable that many other disorders affecting various crops, which have shown virus-like symptoms, may be actually caused by viruses.

Diseases of vegetables

On tomatoes, *Phytophthora capsici* is known to cause damping-off of seedlings and blackeye rot of fruit, especially on tomatoes grown without support. Septoria leaf spot (*Septoria lycopersici*) occurs only sporadically, causing little damage.

Virus diseases are the most detrimental to tomato production. So far, the double-virus streak incited by the combined action of tobacco mosaic virus and potato mosaic virus, and the mosaic disease due to tobacco mosaic virus have been investigated, and tomato spotted wilt has been identified on the basis of symptoms.

Phytophthora capsici also causes damping-off in capsicum pepper seedbeds and root rot in the field. Wilt caused by *Fusarium vasinfectum* is another serious disease of capsicum pepper. On this crop, two virus diseases have been observed, one caused by tobacco mosaic virus and another probably by a new virus, the identity of which has not yet been clearly established.

The most serious disease of potatoes is late blight (*Phytophthora infestans*). The other potato diseases occurring in Mendoza include common scab (*Streptomyces scabies*), Rhizoctonia disease (*Rhizoctonia solani*), silver scurf (*Spondylocladium atrovirens*) and Fusarium wilt (*Fusarium solani*).

In March 1960 the writers found in the Andean valley of Las Carreras a species of *Oidium* on potato almost ready to be harvested. It caused rather serious damage on variety Up-to-Date, but did not attack the more widely grown variety White Rose.

Although intensive and systematic investigation of potato virus diseases is merely beginning, the presence of the following virus diseases has been determined mainly on the basis of symptoms : top necrosis caused by potato virus X, potato leaf roll, and potato yellow dwarf.

The following fungi often occur on vegetable crops :

Oidium erysiphoides on peas and beans
O. ambrosiae on melon and watermelon
Phytophthora capsici on squash
Sclerotinia sclerotiorum on celery and cabbage
Septoria apii and *S. apii-graveolentis* on celery
Uromyces phaseoli typica on beans
U. viciae-fabae on broad beans

Introduction of *Prospaltella perniciosi* for Control of San Jose Scale in India and Pakistan

V. Sudha Rao and V. P. Rao,[1] Commonwealth Institute of Biological Control, Indian Station, Bangalore

The San Jose scale, *Quadraspidiotus perniciosi* (Comst.), is becoming an increasingly serious problem in the North Indian States of Kashmir, Punjab, Himachal Pradesh and Uttar Pradesh. The pest poses a serious threat to Kashmir, which is the largest apple-producing state and which also produces a variety of other temperate fruits. Here the scale, which at first was found to attack only apple and other deciduous fruit trees, is now also attacking poplars and willows. Poplars form a large part of the forest area in the state, while one species of willow is the pivot of the basket-making industry and others are used for making cricket bats, etc., and as fuel. The loss of these trees would have serious effects. Pruthi and Rao (3) recorded nearly 50 cultivated and wild hosts of the pest in Northwest India belonging to various families.

For the last several years, chemicals, particularly diesel oil sprays, have been used for controlling the San Jose scale, evidently without any pronounced benefit, since the effect of insecticides is very often transitory. The use of modern synthetic insecticides would be very expensive because of the vast areas which would have to be sprayed, and there would also exist the possibility of destroying the natural enemies.

Following the reported successful control of the scale in California by the aphelinid parasite, *Prospaltella perniciosi* Tower, the Indian Agricultural Research Institute undertook in 1953 to import the parasite from California. For reasons not clearly understood, this effort was not successful. When the Indian Station of the Commonwealth Institute of Biological Control was established, the question of importing the parasite was raised once again and necessary funds were provided by the Government of India. The breeding of the parasite was taken up immediately at the California station and, toward the middle of December 1958, the first shipment of parasitized scale material was received in India.

Mass multiplication of the scale

In order to provide a medium for the breeding of parasites, a sufficiently large culture of the San Jose scale must be obtained and maintained in the laboratory. For this purpose, it was found necessary to have host plant material with the following characteristics: (*a*) a host on which an appreciable number of larvae or crawlers would settle and grow; (*b*) which would last with the scale attack on it for a minimum of two months; and (*c*) which could be shipped with parasitized scales on it with comparative ease.

Flanders (2) used citron melon (*Citrullus vulgaris*) for breeding the scale in California. D.C. Lloyd of the California Station of the Commonwealth Institute of Biological Control, however, reported better results with fruits of banana squash (*Cucurbita maxima*), a host very generally used for diaspine scale production in California. In France, Benassy and Burgerjon (1) used watermelon (*Citrullus vulgaris*) which, however, was readily attacked by *Colletotrichum lagenarium* and became useless. They therefore also used scale-infested stems of two or three other food plants, such as apple, pear or black currant.

[1] The authors are indebted to Dr. D.C. Lloyd, of the California Station of the Commonwealth Institute of Biological Control, for information on his methods of breeding the San Jose scale and the parasite and for supplying initial stocks. They are also grateful to Dr. F. J. Simmonds, Director of the Commonwealth Institute of Biological Control, for his keen interest in this project and for his advice and assistance.

Although citron melon was successfully grown at Bangalore with imported seed, climatic and other conditions did not permit large-scale production of the melon, which requires a rather dry climate and sandy soil. An attempt was therefore made to use pumpkin (*Cucurbita pepo*), which is easily obtained in large quantities locally throughout the year. This proved to be a very successful host plant which could be kept in good condition, even though infested, for five to eight months. The scale crawlers settled on it within 24 hours, grew rapidly and matured in a period of 35 to 40 days at laboratory temperature of 80°F.

White marrow (*Cucurbita pepo*) was also found to be a fairly suitable host but, since its keeping quality is not as good as that of pumpkin, it was not used for large-scale rearing. Another cucurbitaceous fruit, *Cucurbita* sp., from the west coast of India was also tried, since it could be stored easily for six to eight months, but on account of its smooth skin the crawlers failed to settle on it in large numbers.

A culture of the San Jose scale was started from a few crawlers found in a small shipment from Kulu containing 20 infested apple twigs. Crawlers which emerged from the mother scales were transferred to fresh sterilized pumpkins. Within a short time, thousands of crawlers were found emerging every day from mature scales on infested fruits. Infested fruits were kept on wooden supporting frames, rectangular or square, depending on the shape of the fruit, to facilitate handling and to permit uniform aeration (Figure 1).

Because of the necessity of keeping numbers of pumpkins heavily infested with early nymphal stages, a speedier method was devised for transferring crawlers. For this purpose, a large cage, 27 × 18½ × 17½ inches, with a glass top, two sleeves, a central door and firm clamps, was used. Along the edge of the doorway of the cage, narrow foam-rubber tape

Figure 1. Cages for multiplication of San Jose scale. Wooden frames are used for supporting infested pumpkins.

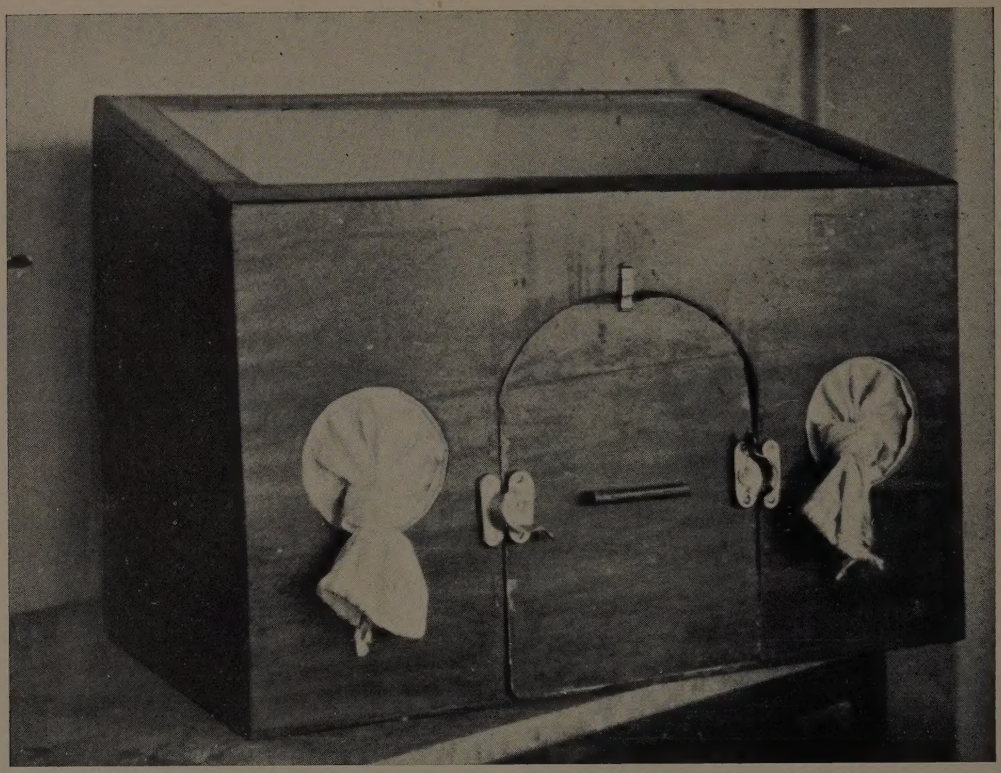

Figure 2. A cage for speedily collecting crawlers of San Jose scale from infested pumpkins.

was fixed to hold the door firmly in place without leaving any crevices (Figure 2). On the floor of the cage, a large sheet of art or butter paper was spread, on which a pumpkin with a heavy infestation of crawlers was placed. A convenient length of plastic tubing was fixed to the jet of an air compressor unit. The door of the cage was then closed and firmly clamped in position and a fine jet of air was blown over the infested fruit by introducing the tube through either of the sleeves, directing it downward. After a large number of crawlers were blown on the paper, they were shaken or tapped off, onto a previously sterilized pumpkin. The newly infested pumpkin was then kept in a cage completely covered with black cloth. It was necessary to maintain the darkness as otherwise the crawlers, being positively phototropic, would not settle on the fruit but crawled away toward the light. The pumpkin was removed from the dark chamber after a period of 24 hours and kept in ordinary insect cages until the scales were ready for parasitism, that is, from three to eight days after the crawlers had settled.

Breeding of the parasite

At the beginning, large rectangular battery jars, with foam rubber tape fixed to the tops and with wrought iron frames, were used for the breeding of parasites. Organdie, cut to the required size with a plastic sleeve in the center, was fitted to the top of each jar and kept in position by means of the iron frame which was sufficiently tight to prevent escape of the parasites or crawlers of the pest. Fine streaks of honey and water, of about 1 : 1 dilution, were placed on the sides of the jar

and a pumpkin bearing scales from three to eight days old was placed in it, after which the parasites were introduced into the jar.

As an improvement, special cages 1 × 1 × 1 feet, were later devised to allow good aeration and lighting. Each cage was provided with glass sides, a wooden base and an organdie top with a sleeve in the center. One of the four glass sides of the cage was made into a sliding door, and streaks of honey water were placed on all the glass sides. The fruit, bearing a suitable scale population, was put in the cage and, after sliding the door of the cage back into position, all crevices were blocked with plasticine. A maximum of 100 parasites were released in each cage. The percentage of parasitized insects obtained was found to be higher when the cage was placed in a well-lit room. On emergence from the scales, the adult parasites produced were collected in specimen tubes, by holding the tubes over individual parasites until the latter hopped into them. The use of an ordinary aspirator was found to cause a higher mortality of the parasites.

The life of an adult parasite varied from 8 to 12 days, and rarely up to 15 days. Under laboratory conditions of 80°F. and 50 percent relative humidity, the developmental period of the parasite was found to be 25 to 30 days. After the appearance of the first adult of the first generation of parasites on a pumpkin, emergence continued for a minimum of 30 days. Also, almost immediately after emergence, the parasites would oviposit when scales of suitable age were available. This eventually gave rise to a second generation of parasites. In view of the possibility of obtaining a second generation of parasites, the fruits bearing parasitized scales were kept in the cages until they had decayed completely. On an average, 1,000 to 1,200 parasites were obtained from each fruit, on which 100 had been released. In this manner, a large culture was built up, with a daily emergence of upward of 5,000 parasites.

Shipping of parasites

Parasitized scales have been dispatched to Kashmir, Punjab, Himachal Pradesh and Uttar Pradesh in India, and also to Pakistan. At first, skins of the pumpkins bearing parasitized scales were removed, rolled in muslin and packed in strong plastic containers which were then inserted in cloth-lined envelopes. Later, entire pumpkins bearing parasitized scales, packed in wooden boxes, were found to be more suitable for shipping, and mortality of the scales during transit was very low. For this purpose, the fruit with the supporting frame was placed in a close-fitting box specially made to suit the individual fruit. The stalk of the fruit was made to protrude through a hole in the top of the box and this hole was then packed with cotton wool, so that the pumpkin stalk was held rigidly in place. The consignments were received in Kashmir, Punjab and Himachal Pradesh in good condition ; the parasites were liberated in infested orchards and have also been used for laboratory breeding. At Kulu, Punjab, the parasite has been recovered from the field. In Himachal Pradesh the parasite has established itself at Kotkhai, where liberation had been effected earlier. In the Kashmir Valley, large-scale liberations of the parasite were made before the end of autumn in 1959. In Uttar Pradesh, the parasites were liberated directly in the field in the Jilling area of Nainital district.

Similar shipments of parasitized material have also been made to the Pakistan Station of the Commonwealth Institute of Biological Control.

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OUTBREAKS AND NEW RECORDS

PAKISTAN

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Pseudoplea trifolii on Egyptian clover

During March 1959 a field of Egyptian clover (*Trifolium alexandrinum*) at Lyallpur was found to be infected with a leaf spot disease. Nearly all the plants in the field showed spots and serious infections occurred sporadically in patches of plants, which had the appearance of being scorched.

The disease causes small sunken spots with brown margins less than 2 millimeters in diameter on leaves and tender petioles. The spots first appear on lower leaves and spread upward, involving eventually all the leaves of a plant, but they have not been observed on stems. Affected leaves turn brown, shrivel and dry.

Examination of the spots revealed the presence of inconspicuous fruiting bodies, composed of a loose mass of parenchymatous tissue embedded in the necrotic tissue of affected leaves. Spores were not then present.

Preserved specimens were re-examined at the end of August 1959 and it was found that the fruiting bodies had matured, each containing three to four asci with eight muriform ascospores. Asci are broadly ovate in shape and measure 53.3-93.3 × 33.3-40 μ, averaging 61.2 × 36.3 μ. Ascospores are cylindrical, 3-septate, hyaline to slightly yellowish and measure 21.4-32 × 10.7-12.5 μ, averaging 27.4 × 11.0 μ. The fungus was identified as *Pseudoplea trifolii* (Rostr.) Petrak. *Trifolium alexandrinum* is apparently a new host for this fungus, as available literature shows no record of its occurrence on this host.

The morphology of this fungus as found in Pakistan agrees closely with that described by Rostrup [1] for *Sphaerulina trifolii*, which was later transferred to the genus *Pseudoplea* by Petrak.[2]

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[1] Rostrup, F.G.E. 1899. Mycologiske Meddelelser VIII. *Bot. Tidsskr.* 22 : 254-276.

[2] Petrak, R. 1921. Mykologische Notizen III. *Ann. Mycol.* 19 : 1-223.

PLANT QUARANTINE ANNOUNCEMENTS

GUATEMALA

An Executive Order of 2 December 1959, published in *El Guatemalteco* Vol. 157, No. 86 of 19 December 1959, prohibits the importation of the seed and vegetable parts of cacao and rubber into Guatemala, except those imported by the National Institute of Agriculture and Livestock. Only the National Institute of Agriculture and Livestock is authorized to import such plant materials for investigation or improvement purposes.

NETHERLANDS NEW GUINEA

Amendment Decree No. EZ 60-50 of 28 April 1960, issued by the Director of the Department of Economic Affairs, amends the Executive Regulations Plant Quarantine Ordinance proclaimed by Decree EZ 59-98 of 17 October 1959 (see *FAO Plant Prot. Bull.* 8 : 60-62. 1960) with regard to the importation of live plant material from the American tropics.

Importation of live plant material originating from the American tropics, which was previously prohibited, is permitted from 1 June 1960 onward under the following conditions :

Seeds originating from the American tropics may be imported, provided they have been inspected and redisinfected at an approved place outside the Southeast Asia and Pacific region and the American tropics, and repacked in unused containers and packing material. A certificate to this effect must be submitted.

Live plant material other than seed, capable of further growth or propagation may be imported from the American tropics, provided it has been grown for a period of one year, or less if justified, in an approved intermediate quarantine station and has thereby been found to be free from disease symptoms. A certificate to this effect must be submitted.

PAKISTAN

Statutory Notification S.R.O. 128 (K) of 10 February 1960, published in the *Gazette of Pakistan* No. 8 of 19 February 1960, amends Notification No. F. 320/35A of 20 July 1936 with regard to the importation of potatoes.

By this amendment, the importation of potatoes by any means, except from Burma, Ceylon and India, is prohibited, unless accompanied by an official certificate from the country of origin declaring :

1. that the crop from which the consignment is derived was not grown in the vicinity of unhealthy potato crops and was inspected by the phytopathological service of the country of origin and found free from all injurious insect pests and diseases ; and
2. that wart (*Synchytrium endobioticum*), golden nematode (*Heterodera rostochiensis*), and Colorado beetle (*Leptinotarsa decemlineata*) were not recorded within five miles of the place of origin during the 12 months preceding the date of issue of the certificate.

UNITED STATES

A Foreign Plant Quarantine Notice of 21 September 1959, published in the *Federal Register* Vol. 24, No. 187 on 24 September 1959, amends Quarantine No. 73 concerning imports of unroasted coffee and related items into Puerto Rico and Hawaii. Quarantine 73 was previously related only to imports of such materials into Puerto Rico.

Imports into Puerto Rico and Hawaii of the following materials of coffee is prohibited except under prescribed conditions, as mentioned in the following sections :

1. seeds or beans of coffee that have not previously been roasted to a degree which

could have destroyed coffee borer (*Stephanoderes hampei*) in all stages;

2. coffee berries or fruits;
3. coffee plants and leaves;
4. empty sacks previously used for unroasted coffee.

Imports into Puerto Rico

Samples of unroasted coffee seeds and beans, not exceeding 1 pound in weight and empty sacks previously used for unroasted coffee may be imported under permit into Puerto Rico. They will be subject, on arrival, to inspection and treatment as required by the inspector.

In transit shipments of unroasted coffee seeds and beans through Puerto Rico will be subject to prescribed safeguard measures.

Imports into Hawaii

Samples of unroasted coffee seeds and beans in closed mail dispatches, when in transit shipments, will not be subject to quarantine action. Other samples of unroasted coffee seed or beans received by mail will be subject to inspection and safeguard action.

Samples of unroasted coffee seeds and beans coming to Hawaii as cargo and not unloaded may be allowed to proceed to destination outside Hawaii. If the samples are transshipped in Hawaii, it should be done immediately and the samples will be required to be properly wrapped or packaged.

Other shipments of prohibited coffee products by mail, cargo and baggage may not be unloaded or transshipped in Hawaii and will be subject to inspection and other requirements.

VENEZUELA

Resolution Ag-29 of 10 February 1960, published in the *Gaceta Oficial* Vol. 88, No. 26181 on 11 February 1960, regulates the importation of living plant material intended for reproduction, planting, or ornamental purposes. It revokes Resolution No. 4 of 20 December 1948.

The importation of living plants and parts of plants capable of reproduction, such as seeds, cuttings, scions, shoots, leaves, buds, tubers, rhizomes and stolons must be covered by an import permit issued in advance by the Plant Protection Service of the Ministry of Agriculture and Livestock. The application for the permit should indicate the number and quantity of each species or variety to be imported; names and addresses of the supplier and the applicant; exact location where the plant material will be grown; and the route of shipment and destination.

Authorized imports must be accompanied by the corresponding import permit and a phytosanitary certificate issued by the competent authority of the country of origin and legalized by the Consul of Venezuela, stating that the plant material is free from agricultural pests or diseases. Furthermore, the plant material must be completely free from soil and sand and adequately packed in new packing material.

If found on arrival to be affected by pests or diseases that are not known to occur in Venezuela, the shipment will be destroyed. Unauthorized imports of plant materials will be destroyed regardless of its phytosanitary condition.

Living plants and parts of plants may be introduced into the country only through the ports of La Guaira, Maracaibo, Puerto Cabello, Carúpano, Guanta, Puerto La Cruz, Cumaná, Ciudad Bolívar, San Antonio del Táchira, the international airports of Maiquetía and Maracaibo, and any other port that might be authorized for this purpose.

NEWS AND NOTES

HUNGARY ADHERES TO INTERNATIONAL PLANT PROTECTION CONVENTION

The Government of the Hungarian People's Republic became party to the International Plant Protection Convention on 17 May 1960, when its instrument of adherence was received by the Director-General of FAO. The number of governments contracting to the Convention, including both signatory and adhering members, is thus at the time of writing 40. These are Argentina, Australia, Austria, Belgium, Cambodia, Canada, Ceylon, Chile, Denmark, Dominican Republic, Ecuador, United Arab Republic, El Salvador, Federal Republic of Germany, France, Greece, Guatemala, Hungary, India, Iraq, Ireland, Israel, Italy, Japan, Korea, Laos, Luxembourg, the Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Republic of the Philippines, Portugal, Spain, Sweden, the Union of South Africa, the U.S.S.R., the United Kingdom and Yugoslavia.

INTERNATIONAL CONFERENCE ON SCIENTIFIC PROBLEMS OF PLANT PROTECTION

In connection with the 80th anniversary of the Hungarian Plant Protection Research Institute, a Conference on Scientific Problems of Plant Protection, sponsored by the Hungarian Academy of Science, will be held in Budapest from 19 to 22 July 1960. The program will include symposia on host-parasite relations in plant diseases, natural balance and insect pest problems, and the mode of action of plant protection chemicals.

Further enquiries about the Conference should be addressed to the Secretary of the Conference, Dr. Z. Király, Agricultural Section of the Hungarian Academy of Sciences, Nádor u. 7, Budapest.

PLANT PROTECTION AND QUARANTINE CONFERENCE

The Tenth International Conference on Plant Protection and Plant Quarantine, convened by the Ministry of Agriculture of the Peoples Republic of Romania, will take place in Bucharest, 16-29 September 1960. The Conference was mainly organized by Eastern European countries and its ninth session was held in Moscow in 1958.

At the forthcoming Conference, delegates of participating countries will report on phytosanitary conditions in their respective countries, as well as important research achievements and the efficacy of control measures adopted, which will be followed by considerations of various aspects relating to the application of pesticidal chemicals and a review of the implementation of the recommendations of the ninth Conference.

Technical discussions will take place in two sections, one on plant protection, and the other on plant quarantine. The agenda circulated contains the following topics:

Plant protection

1. New achievements in the forecasting and warning methods for plant pest and disease outbreaks
2. Prevention of undesirable effects of pest control on natural balance
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